

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:
Chen, et al.

Serial No.: 10/611,589

Confirmation No.: Unknown

Filed: June 30, 2003

For: Method and Apparatus for
Annealing Copper Films

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§ Group Art Unit: Unknown
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§ Examiner: Unknown
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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

CERTIFICATE OF MAILING 37 CFR 1.8	
I hereby certify that this correspondence is being deposited on October <u>16</u> , 2003 with the United States Postal Service as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450 Alexandria, VA 22313-1450.	
<u>10/16/03</u> Date	<u><i>Kevin R. Zuber</i></u> Signature

INFORMATION DISCLOSURE STATEMENT

The Applicants, and the Attorney who signs below on the basis of the information supplied by the inventor and the information in his file, submit herewith patents, publications, or other information of which they are aware, which may be material to the examination of this application and in respect of which there may be a duty to disclose in accordance with 37 CFR § 1.56.

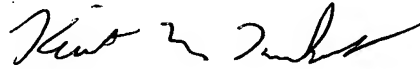
While the information submitted in this Information Disclosure Statement may be material pursuant to 37 CFR § 1.56, it is not intended to constitute an admission that any patent, publication, or other information referred to therein is prior art for this invention unless specifically designated as such.

In accordance with 37 CFR § 1.97, this Information Disclosure Statement is not to be construed as a representation that a search has been made or that no other possibly material information as defined under 37 CFR § 1.56(a) exists.

The patents and/or publications submitted herewith are set forth on the attached Form PTO-1449.

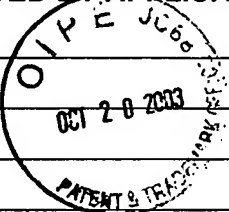
If the sum of \$180.00 is due under 37 CFR § 1.17(p) pursuant to § 1.97, the Commissioner is hereby authorized to charge this fee, and any other fee necessary to make this submission timely, to the Deposit Account No.: 20-0782/AMAT/1717.D2/KMT.

Respectfully submitted,



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U.S. Department of Commerce, Patent and Trademark Office (PTO Form 1449 modified)				Docket No. AMAT/1717.D2/CMP/ ECP/RKK		Serial No. 10/611,589	
LIST OF PATENTS AND PUBLICATIONS CITED BY APPLICANT				Applicant CHEN, ET AL.		Confirmation UNKNOWN	
(Use several sheets if necessary)				Filing Date JUNE 30, 2003		Group UNKNOWN	
Examiner UNKNOWN							



U.S. Patent Documents							
*Examiner Initial		Document Number	Issue Date	Applicant(s) Name	Class	Subclass	Filing Date If Appropriate
	A1	6,508,920	01/21/2003	Ritzdorf, et al.	204	194	08/31/1999
	A2	6,309,520	10/30/2001	Woodruff, et al.	204	242	08/31/1999
	A3	6,294,059	09/25/2001	Hongo, et al.	204	198	09/17/1998
	A4	6,290,933	09/18/2001	Durga, et al.	424	49	05/09/2000
	A5	6,290,865	09/18/2001	Lloyd, et al.	216	92	11/30/1998
	A6	6,276,072	08/21/2001	Morad, et al.	34	428	09/15/1999
	A7	6,267,853	07/31/2001	Dordi, et al.	204	232	07/09/1999
	A8	6,258,220	07/10/2001	Dordi, et al.	204	198	04/08/1999
	A9	6,207,005	03/27/2001	Henley, et al.	156	345	07/28/1998
	A10	6,203,582	03/20/2001	Berner, et al.	29	25.01	07/15/1996
	A11	6,187,152	02/13/2001	Ting, et al.	204	224 R	07/17/1998
	A12	6,136,163	10/24/2000	Cheung et al.	204	198	03/05/1999
	A13	6,093,291	07/25/2000	Izumi et al	204	224	07/31/98

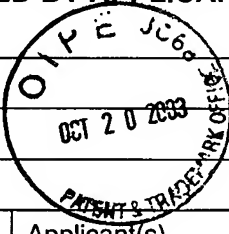
Foreign Patent Documents								
*Examiner Initial		Document Number	Date	Country	Class	Subclass	Translation	
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	B1	97/12079	04/03/1997	WIPO	C25D	5/02		X
	B2	6017291	01/25/1994	JAPAN (Abstract)	C25D	7/12	X	
	B3	04131395	05/06/1992	JAPAN (Abstract)	C25D	5/34	X	

OTHER ART		
*Examiner Initial		Including Author, Title, Date, Pertinent Pages, Etc.
	C1	Lucio Colombo, "Wafer Back Surface Film Removal," Central R&D, SGS-Thompson, Microelectronics, Agrate, Italy, 6 pages
	C2	Semitool, Inc., "Metallization & Interconnect," 1998, 4 pages

Examiner	Date Considered
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U.S. Patent Documents							
*Examiner Initial		Document Number	Issue Date	Applicant(s) Name	Class	Subclass	Filing Date If Appropriate
	A14	6,071,388	06/06/2000	Uzoh	204	297	05/29/1998
	A15	6,015,749	01/18/2000	Liu, et al.	438	628	05/04/1998
	A16	5,884,009	03/16/1999	Okase	392	418	08/05/1998
	A17	5,820,692	10/13/1998	Baecker, et al.	134	21	01/16/1996
	A18	5,723,028	03/03/1998	Poris	204	231	10/19/1994
	A19	5,718,813	02/17/1998	Drummond et al	204	192.12	04/02/1998
	A20	5,716,207	02/10/1998	Michina, et al.	432	253	07/26/1996
	A21	5,705,223	01/06/1998	Bunkofske	427	240	12/05/1995
	A22	5,677,244	10/14/1997	Venkatraman	437	198	05/20/1996
	A23	5,651,865	07/29/1997	Sellers	204	192.13	06/17/1994
	A24	5,625,170	04/29/1997	Poris	177	50	01/18/1994
	A25	5,608,943	03/11/1997	Konishi et al	15	302	08/22/1994
	A26	5,527,739	06/18/1996	Parrillo, et al.	437	198	05/23/1995

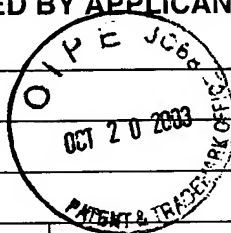
Foreign Patent Documents								
*Examiner Initial		Document Number	Date	Country	Class	Subclass	Translation	
							YES	NO
	B4	04280993	10/06/1992	JAPAN	C25D	5/18		X
	B5	63118093	05/23/1988	JAPAN	C25D	5/18		X
	B6	58182823	10/25/1983	JAPAN	H01L	21/288		X

OTHER ART		
*Examiner Initial		Including Author, Title, Date, Pertinent Pages, Etc.
	C3	Verteq Online , "Products Overview," 1996-1998, 5 pages
	C4	Laurell Technologies Corporation, "Two control configurations available-see <u>WS 400 OR WS-400Lite</u> ." 10/19/1998, 6 pages

Examiner	Date Considered
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Examiner UNKNOWN			

**U.S. Patent Documents**

*Examiner Initial		Document Number	Issue Date	Applicant(s) Name	Class	Subclass	Filing Date If Appropriate
	A27	5,516,412	05/14/1996	Andricacos et al	204	224 R	05/16/1995
	A28	5,449,447	09/12/1995	Branders	205	141	04/16/1992
	A29	5,447,615	09/05/1995	Ishida	204	224 R	06/22/1994
	A30	5,442,235	08/15/1995	Parrillo, et al.	257	758	12/23/1993
	A31	5,429,733	07/04/1995	Ishida	204	224 R	05/04/1993
	A32	5,415,890	05/16/1995	Kloider et al	427	242	01/03/1994
	A33	5,377,708	01/03/1995	Bergman et al	134	105	04/26/1993
	A34	5,377,425	01/03/1995	Kawakami, et al.	34	92	05/22/1992
	A35	5,368,711	11/29/1994	Poris	204	193	04/29/1993
	A36	5,349,978	09/27/1994	Sago et al	134	153	06/04/1993
	A37	5,328,589	07/12/1994	Martin	205	296	12/23/1992
	A38	5,324,684	06/28/1994	Kermani, et al.	437	95	02/25/1992
	A39	5,316,974	05/31/1994	Crank	437	190	04/30/1990

Foreign Patent Documents

*Examiner Initial		Document Number	Date	Country	Class	Subclass	Translation	
							YES	NO
	B7	1 085 557	03/21/2001	EP	H01L	21/00		X
	B8	1 037 263	09/20/2000	EP	H01L	21/00		X
	B9	0 421 735	02/10/1990	EP	H01L	23/48		X
	B10	0 881 673	12/02/1998	EP	H01L	21/768		X

OTHER ART

*Examiner Initial		Including Author, Title, Date, Pertinent Pages, Etc.
	C5	Peter Singer, "Tantalum, Copper and Damascene: The Future of Interconnects," Semiconductor International, June, 1998, Pages cover, 91-91, 94, 96 & 98
	C6	Peter Singer, "Wafer Processing," Semiconductor International, June, 1998, page 70

Examiner	Date Considered
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U.S. Patent Documents

*Examiner Initial		Document Number	Issue Date	Applicant(s) Name	Class	Subclass	Filing Date If Appropriate
	A40	5,292,393	03/08/1994	Maydan, et al.	156	345	12/16/1991
	A41	5,290,361	03/01/1994	Hayashida et al	134	2	01/23/1992
	A42	5,259,407	11/09/1993	Tuchida et al	134	151	06/14/1991
	A43	5,256,274	10/26/1993	Poris	205	123	11/22/1991
	A44	5,252,807	10/12/1993	Chizinsky	219	390	10/23/1991
	A45	5,230,743	07/27/1993	Thompson et al	134	32	07/30/1992
	A46	5,224,504	07/06/1993	Thompson et al	134	155	07/30/1992
	A47	5,222,310	06/29/1993	Thompson et al	34	202	01/11/1991
	A48	5,162,260	11/10/1992	Leibovitz et al	437	195	01/07/1991
	A49	5,155,336	10/13/1992	Gronet et al	219	411	10/24/1991
	A50	5,100,516	03/30/1992	Nishimura et al	205	145	01/23/1990
	A51	5,092,975	03/03/1992	Yamamura et al	204	198	06/15/1989
	A52	5,069,760	12/03/1991	Tsukamoto et al	205	80	06/22/1990

Foreign Patent Documents

*Examiner Initial		Document Number	Date	Country	Class	Subclass	Translation	
							YES	NO
	B11	99/40615	08/12/1999	WO	H01L	21/28		X
	B12	93/17448	09/02/1993	WO	H01L	21/20		X
	B13							

OTHER ART

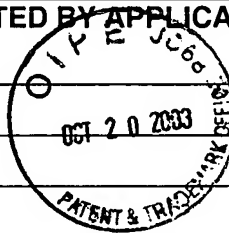
*Examiner Initial		Including Author, Title, Date, Pertinent Pages, Etc.
	C7	Kenneth E. Pitney, "NEY Contact Manual," Electric Contacts for Low Energy Uses, 1973
	C8	Gurtej S. Sandhu et al., "Variations in Cu CMP Removal Rate Due to Cu Film Self-Annealing," Advanced Metallization Conference in 1998 (AMC 1998), 8 pages

Examiner

Date Considered

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**U.S. Patent Documents**

*Examiner Initial		Document Number	Issue Date	Applicant(s) Name	Class	Subclass	Filing Date If Appropriate
	A53	5,055,425	10/08/1991	Leibovitz et al	437	195	06/01/1989
	A54	5,039,381	08/13/1991	Mullarkey	204	47.5	05/25/1989
	A55	4,816,638	03/28/1989	Ukai, et al.	219	121.43	10/20/1987
	A56	4,816,098	03/28/1989	Davis, et al.	156	345	07/16/1987
	A57	4,789,445	12/06/1988	Goffman et al	204	114	11/19/1986
	A58	4,732,785	03/22/1988	Brewer	427	240	09/26/1986
	A59	4,693,805	09/15/1987	Quazi	204	192.22	02/14/1986
	A60	4,568,431	02/04/1986	Polan, et al.	204	13	06/24/1985
	A61	4,519,846	05/28/1985	Aigo	134	15	03/08/1984
	A62	4,518,678	05/21/1985	Allen	430	311	12/16/1983
	A63	4,510,176	04/09/1985	Cuthbert et al	427	82	09/26/1983
	A64	4,489,740	12/25/1984	Rattan et al	134	140	12/27/1982
	A65	4,435,266	03/06/1984	Johnston	204	276	09/30/1982

Foreign Patent Documents

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	B14							
	B15							
	B16							

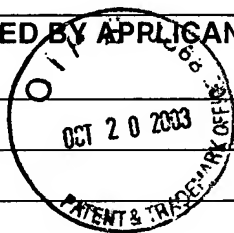
OTHER ART

*Examiner Initial		Including Author, Title, Date, Pertinent Pages, Etc.
	C9	Cindy R. Simpson et al., "The Electrical Integrity of Copper Plated Wafers Using a Novel Plating Both Chemistry" Abstract No. 727, 1 page
	C10	European Search Report from EP 0110 3525 dated July 10, 2001.

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**U.S. Patent Documents**

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	A66	4,428,815	01/31/1984	Powell et al	204	297 W	04/28/1983
	A67	4,405,416	09/20/1983	Raistrick, et al.	204	68	09/15/1981
	A68	4,376,685	03/15/1983	Watson	204	52 R	06/24/1981
	A69	4,336,114	06/22/1982	Mayer et al	204	52 R	03/26/1981
	A70	4,326,940	04/27/1982	Eckles et al	204	232	05/21/1979
	A71	4,315,059	02/09/1982	Raistrick et al	429	112	07/18/1980
	A72	4,113,492	09/12/1978	Sato et al	96	67	04/08/1977
	A73	4,110,176	08/29/1978	Creutz, et al (deceased)	204	52 R	05/04/1977
	A74	4,092,176	05/30/1978	Kozai et al	134	186	12/07/1976
	A75	4,027,686	06/07/1977	Shortes et al	134	33	01/02/1973
	A76	3,770,598	11/06/1973	Creutz	204	52 R	01/21/1972
	A77	3,727,620	04/17/1973	Orr	134	95	03/18/1970
	A78	3,649,509	03/14/1972	Morawetz et al	204	238	07/08/1969

Foreign Patent Documents

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	B17							
	B18							
	B19							

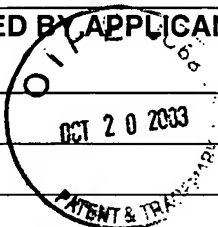
OTHER ART

*Examiner Initial		Including Author, Title, Date, Pertinent Pages, Etc.
	C11	Singapore Search Report for Application 2000/05246-4 dated April 30, 2002
	C12	Cindy R. Simpson et al., "The Electrical Integrity of Copper Plated Wafers Using a Novel Plating Both Chemistry" Slides Publicly Disclosed, 13 pages October 17-22, 1999.

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**U.S. Patent Documents**

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	A79	2002/0074233	06/20/2002	Ritzdorf, et al.	205	157	06/20/2001
	A80	2002/0037641	03/28/2002	Ritzdorf, et al.	438	618	06/15/2001
	A81	2002/0029961	03/14/2002	Dordi, et al.	204	198	03/29/2001
	A82	2002/0022363	02/21/2002	Ritzdorf, et al.	438	672	02/04/1998
	A83	2002/0000271	01/03/2002	Ritzdorf, et al.	148	518	08/31/1999
	A84	2001/0030101	10/18/2001	Berner, et al.	198	346.1	03/16/2001
	A85						
	A86						
	A87						
	A88						
	A89						
	A90						
	A91						

Foreign Patent Documents

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							YES	NO

OTHER ART

*Examiner Initial		Including Author, Title, Date, Pertinent Pages, Etc.
	C13	Singapore Search Report for Application 00010504 dated 05/23/2001 (AMAT/3421C1)
	C14	European Search Report for Application 301415.6 dated 12/11/2000 (AMAT/3421C1)
Examiner		Date Considered

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